July 20, 2004

Dear Interested Parties:

**REQUEST FOR EXPRESSIONS OF INTEREST – S-109 STAGING TANK**

CH2M Hill Hanford Group, Inc. (CH2M HILL) as a prime contractor to the U.S. Department of Energy is seeking businesses to provide 1000 gallon Staging Tank as follows:

Staging Tank Requirements

1. General requirements:

The Staging Tank shall be an upright, double wall, flat-bottom storage tank compliant with 40 CFR 265 and WAC 173-303-640 for storage of mixed (radioactive) waste.

Tank capacity: 1100 gal to 2000 gal (actual volume of waste stored < 1000 gal)

Tank pressure: Atmospheric, actively ventilated. Maximum internal pressure the tank will be subjected to in the vapor space is -3" w.c.

Maximum temperature of liquids to be received and stored in tank: 140 deg F

Maximum specific gravity of liquid stored in the tank shall be 1.5.

The tank shall be suitable for installation outdoors, placed directly on soil, over an ambient temperature range of -15 deg F to +125 deg F.

2. Applicable codes and standards:

ASTM D1998, D2765, D2837
ASME B16.5
29 CFR 1910.106
UBC 1997

3. Chemical compatibility:

Tank material shall be compatible with a 9M sodium solution that contains the following chemical constituents at the noted concentrations:

| **Analyte** | **Average Analyte to Na Mole Ratio** |
|---|---|
| $Al^{+3}$ | 9.32E-03 |
| $Ca^{+2}$ | 2.43E-04 |
| $Cl^{-1}$ | 1.50E-03 |
| Cr (TOTAL) | 2.96E-03 |
| $F^{-1}$ | 1.13E-03 |
| $Fe^{+3}$ | 9.57E-04 |
| $K^{+}$ | 8.73E-04 |
| $Mn^{+4}$ | 2.85E-05 |
| $Ni^{+2}$ | 2.13E-05 |
| $NO_2^{-1}$ | 1.31E-02 |
| $NO_3^{1-}$ | 9.29E-01 |
| $Pb^{+2}$ | 2.78E-05 |
| $PO_4^{-3}$ | 1.16E-02 |
| $Si^{+4}$ | 1.13E-03 |
| $SO_4^{-2}$ | 7.79E-03 |
| $Sr^{+2}$ | 6.53E-06 |
| TIC as $CO_3^{-2}$ | 3.58E-02 |
| Total Organic Carbon (TOC) | 5.26E-03 |
| U (Total) | 2.34E-05 |
| Na | 1 |

4. Tank Material

The tank shall be newly manufactured from cross-linkable polyethylene resin, and shall contain a stabilizer for resistance to ultraviolet radiation.

5. Test Requirements

The tank shall be subjected to ultrasonic testing to verify wall thickness complies with design requirements. The tank shall be subjected to a hydrostatic test with water as the test media to verify hydraulic integrity. Test reports demonstrating appropriate acceptance criteria for these tests have been met shall be provided by the manufacturer.

6. Tank Fittings

The tanks shall be provided with the following fittings for interface with other system equipment and for installation of in-tank components by the Buyer:

- (1) ¾" FNPT hub in tank top for installation of a tank level probe (wgt = 20 lbs)
- (1) 1" FNPT hub in tank top for connection to a process water hose
- (1) 2" FNPT hub in tank top for installation of ventilation equipment (breather filter)
- (1) 4" ASME B16.5 Cl. 150 RF flange in tank top to serve as an access port for sampling tank contents
- (1) 1" fill pipe connection and (1) 1" draw pipe connection in side of tank top for filling and draining tank contents, with (min) 6" ASME B16.5 Cl. 150 RF flange for attachment of fill/drain line encasement pipe.
- (1) 1" FNPT hub in tank side wall at the 500 gal elevation for installation of a thermowell
- (1) 2" FNPT hub in tank side wall for installation of a 2" overflow pipe, with (min) 4" ASME B16.5 Cl. 150 RF flange for attachment of overflow line encasement pipe. Invert of 2" overflow pipe to be at 1050 gal elevation.
- (2) 2" FNPT hubs in tank side wall for installation of (2) float-type level switches – "Tank Level High" at the 1000 gal elevation, "Tank Level High-High" at the 1025 gal elevation.
- (1) FNPT hub penetration into annular space between tank walls for installation of an approved leak detector element (size is TBD).
- (1) 1" FNPT hub in outer wall for draining liquid which may accumulate in annular space between tank walls.
- (1) Manway with minimum diameter of 18" to allow access to tank interior for rinsing and spraying of fixative after use.

7. Heat Trace and Insulation

The tank shall be heat traced and insulated. Heat trace shall be thermostatically controlled to maintain a product temperature of 80 deg F (nominal) during normal operating conditions. Heat trace and insulation shall be sufficient to maintain a product temperature of at least 60 deg F at the minimum ambient temperature condition of -15 deg F.

8. Leak Detection

The tank shall be fitted with a leak detector to indicate and alarm the presence of liquid in the annular space between tank walls. This device shall detect the presence of 2.4 gallons of liquid or less. The alarm function shall include a relay out put that may be integrated with plant monitoring and control systems and equipment.

9. Miscellaneous Requirements

The tank shall be fitted with lifting lugs to allow placement by means of a crane. The tank shall be fitted with tie-down lugs for anchorage to prevent overturning due to wind loads or displacement due to seismic events (UBC 1997 zone 2, importance factor 1.5).

Interested firms are invited to submit an expression of interest letter to include a response to the following:

1. A description of their system/technical approach.

2. A preliminary drawing/sketch of their concept.

3. A rough order of magnitude (ROM) cost estimate for all components. Itemized by component.
4. A ROM schedule and any qualifying conditions for meeting the schedule.

This is not a Request for Proposal, but a request for an expression of interest.

Expression of interest letters must be received via email at Gary_W_Sandall@rl.gov or by fax at (509) 373-2551 no later than July 29, 2004.

CH2M HILL looks forward to hearing from you regarding this request.

Sincerely,
Gary W. Sandall
Sr. Procurement Specialist
Procurement